DIFFERENTIATING INSTRUCTION

An Honors Thesis (HONRS 499)

by

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Abstract

Differentiating instruction is a teaching philosophy which has guided effective teachers in meeting the needs of a diverse student population. This research was divided into two parts: research and practical application. Research about differentiating instruction included definitions, instructional strategies, assessment methods, relation to standards, and effectiveness of this philosophy. The practical application section includes lessons designed for a fourth grade classroom in social studies and science, implementation of these lessons, and a reflection of the effectiveness of differentiating instruction techniques.

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Differentiating Instruction

What is Differentiating Instruction?

Differentiating Instruction is a proactive philosophy that focuses on students as individuals. It means "changing the pace, level, or kind of instruction you provide in response to individual learners' needs, styles, or interests" (Heacox, 2002, p.5).

Why should you use differentiated techniques?

Differentiated Instruction is a teaching philosophy that recognizes the ways that students differ and addresses these differences. Teachers in both general education and special education classrooms need to focus on the varying skills and abilities of their students (Tomlinson, 1995). The paramount importance of recognizing these differences and providing an accepting, supportive environment was examined by Gregory and Chapman (2002): "Students who are challenged beyond their skill level are more concerned about being embarrassed or laughed at than with the quest for learning" (p.5). They also explained that when students feel success is unattainable or they are concerned about their intellectual safety, they form a negative state in which they cease learning. Conversely, if the students feel comfortable in the classroom, they are open to new information. Therefore, teachers need to create learning experiences that are challenging, but not overwhelming for the students.

A supportive classroom environment is an essential element of the success of a differentiated instruction classroom. Diane Heacox (2002) listed the elements of a supportive classroom. The elements are as follows:

1) Promotes acceptance of differences.

2) Affirms that all students have learning strengths.

3) Acknowledges that students learn at different rates and in different ways.

4) Allows students to work with various people for various purposes.

5) Recognizes that the key to motivation is interest, and that all students have different interests.

6) Promotes personal responsibility for learning.

7) Builds feelings of personal competence and confidence in learning.

8) Values effort and 'personal best'.

9) Nurtures skills of independence

10) Supports and celebrates student success in challenging work

11) Encourages exploration of each student's interests, strengths, and learning preferences.

12) Nurtures the creative spirit in all students.

13) Honors everyone's work (Heacox, 2002, p.13).

Discovering Students

The first question to ask when planning a differentiated instruction unit is "How do students differ?" The average student does not exist in an American school system. Students vary in terms of cultural backgrounds, previous experiences, interests, learning styles, learning preferences, cognitive abilities, socioeconomic factors, readiness, gender influences, learning paces, and learning values (Gregory & Chapman, 2002; Heacox, 2002). Learning styles

refer to the ways in which students process learning. For example, some students process information through doing or creating while other students process information through reflection (Gregory & Chapman, 2002; Silver, Strong, & Perini, 2000). Student thinking styles also differ. Some students think in terms of concrete concepts while other students prefer to look at concepts through an abstract frame of reference (Gregory & Chapman, 2002). The students also vary in terms of a more broad view of intelligence - Gardner's Theory of Multiple Intelligences. Gardner (1983) defined intelligence as a demonstration of three elements: "an ability to solve real-life problems, ability to generate new problems to solve, and ability to make something or offer a service valued by a culture" (5). He discovered that all students are smart; however, they are smart in different ways. He determined seven, and later adjusted the number to nine, intelligences. These intelligences are verbal/linguistic, logical/mathematical, spatial, bodily kinesthetic, musical, interpersonal, interpersonal, naturalist, and existentialist (Silver et al., 2000). Students may be smart in more than one intelligence, but all students have dominant and weak intelligence areas. To reach these students, teachers can use rhythms, raps, and chants, calculations, brainstorming, idea sketches, theater, peer sharing, simulations, and feeling moments. Some activities will work more effectively with some students than others. Furthermore, to adequately assess these students, teacher must incorporate authentic assessments into their assessment plans (Armstrong, 1994; Hoerr, 2000).

One specific group of students possesses many unique qualities: gifted and talented students. Although these students possess individual differences, many qualities of the students in this group are similar. For example, these students often demonstrate a higher retention rate, motivating intellectual curiosity, accelerated pace of learning, advanced comprehension, deep understanding, extensive vocabulary, divergent thinking approaches, ability to comprehend abstract concepts, and a goal-directed focus (Heacox, 2002). To meet the needs of these students, teachers need to respond to student needs by incorporating Gardner's Multiple Intelligences, compacting the curriculum, promoting creativity and critical thinking, or using Cooperative Learning experiences (Smutny, Walker, & Meckstroth, 1997).

Special education students also comprise a group of students often sharing some specific traits. Students with special needs often are less engaged in learning, are unable to process multiple directions, and have problems with organizing and recalling information (Bender, 2002). These students need additional support, practice, and experiences with academic success. Often inexperienced teachers connect students with special needs with behavior problems. However, misbehaviors from this group of students are often a direct result of students protecting themselves from feeling insecure or a sense of failure from repeated negative experiences in school.

In some ways, students are surprisingly similar and benefit from instruction that caters to these similarities. For example, students process information by linking it to information that they previously learned. Therefore,

teachers need to organize information around concepts to help them handle large amounts of new information and relate the new knowledge to previous experiences. In this way, teachers can help students to see "the big picture" and make mental connections so that they will be more able to retrieve the information at a later date. Most students also learn something that affects their emotions. Gregory and Chapman (2002) explained in Differentiated Instructional Strategies that each student possesses an amygdala, "the brain's emotional sentinel (which) imprints memory when experiences evoke strong emotions" (p.81). This part of the brain releases chemicals that change how we think, feel and act (Jensen, 1998). Therefore using this idea, teachers can present information that appeals to students' emotions to help them remember. Furthermore, students benefit from movement incorporated into learning experiences, novelty, interest, expression, and opportunities to share (Jensen, 1998).

How Do You Differentiate Instruction?

Once teachers realize the importance of differentiating instruction and learning in their classrooms, they ask how do you differentiate lessons, activities, units, and assessments. Differentiation is a two-step process:

1) Analyze the current classroom situation by asking the following questions:
    - What are the needs of the students?
    - How do they differ from one another?
    - What aspects of instruction are already differentiated?
    - What skills will have a variety in mastery?

2) Modify, adapt, or design new approaches to instruction in response to students' needs, interests, and learning preferences. Differentiate the content, product, or process (Heacox, 2002).

Differentiate Content: The content is the "what" of teaching: topics, concepts, skills, and themes. To differentiate the content, concentrate on essential skills but allow students to explore the skill or concept in varying levels of depth or by incorporating material at varying levels of complexity (Heacox, 2002).

Differentiate Process: The process is the "how" of teaching: the ways in which we provide information for the students. Because students process information differently, it is often necessary to increase the ways we ask students to learn. This differentiated method includes the activities used to present information to students (Heacox, 2002).

Differentiate Product: The product is the end result of learning. When students complete an activity that is differentiated by product, students perform skits, take examinations, build models, or complete other projects (Heacox, 2002). The way in which students demonstrate their knowledge varies with their learning styles (Bender, 2002).

Differentiating instruction for gifted and talented students usually requires incorporating opportunities for students to move on to more complex material instead of rehearsing already learned material. Diane Heacox (2002) suggested that teachers use the SCAMPER technique. This acronym represents

Substitute: Replace basic content with more abstract or advanced content.

Combine: Combine learning with creative thinking and innovation.

Adapt: Adapt instruction to help these students reach a personal high level.

Modify: Modify learning to provide more abstract learning.

Put to other use: Use student time more efficiently by incorporating student interests and talents.

Eliminate: Eliminate previously mastered content or skills.

Reverse/Rearrange: Rearrange the schedule to allow students more time to create original ideas and products (p. 137).

To ensure success, Peltig (2000) advised finding a buddy, encouraging student responsibility, and providing students with choices. Wehrmann (2000) suggested that incorporating student passions and raising the bar for all students is an important element in successful differentiation. Tomlinson (1999) warned teachers against creating "hazy" lessons in which student activities lose focus of essential skills and concepts. These lessons usually require students to "do something" related to the topic (p. 37).

How Do I Assess Students?

Assessment is an important element in a differentiated classroom because differentiated techniques take the teacher and student beyond rote memorization and paper-and-pencil tests. Furthermore, Jensen (1998) described that student brains need challenge and feedback in order to learn (1998). Therefore, teachers need to provide these opportunities for challenge and provide feedback often.

Pre-assessment

Recently, teachers have begun to recognize the importance of pre-assessment in designing effective instruction. A differentiated classroom incorporates many forms of pre-assessment to fulfill several purposes. These assessments help the teacher to find out what the students already know, what levels of mastery can be expected, what instruction is required to help students reach a personal level of mastery, what previously-learned skills need to be reviewed, what interests the students have, and what grouping procedures would be appropriate for a unit (Gregory & Chapman, 2002). When creating a pre-assessment for a unit, teachers should cover an entire unit, include various levels of questions from simple to complete, group questions according to the skill or standard they address, and ask students to transfer knowledge into new scenarios. These assessments can then be used to design flexible groups and determine the number of students at each level of mastery. Instead of a paper-and-pencil objective pre-assessment, some teachers prefer to use a more informal assessment for their students, such as asking students to place a post-it note on the chalkboard near their level of expertise in a given subject. Gregory and Chapman (2002) described four pre-assessment ideas: Squaring Off, Boxing, Yes/No Cards, and Graffiti Facts.

Squaring Off

With the Squaring Off technique, students place themselves in the room according to their knowledge about a subject. The areas of the room could be named dirt road, paved road, highway, and yellow brick road. These areas

represent that a student rarely ever understands, sometimes understands, often understands, or is able to teach the material to other students. Once the students reach their area of expertise, they discuss with the other members in that corner of the room (Gregory & Chapman, 2002).

Boxing

With this strategy, students draw one of two boxes to explain what they believe to be their level of knowledge. The first type of box, "Getting to the Heart of the Matter", involves students drawing one box with a larger box surrounding it. The title for the inner box is "What do I want to learn?". The title for the outer box is "What do I already know?" the students then fill in information that lies in each box. When using the second type of box, "Gift of Success", students, once again, draw two concentric boxes. In the center box, students draw a picture or make a graphic organizer for a topic and explain its meaning. In the outside box, students write the question "How does it fit?" or "What else do I know?" (Gregory & Chapman, 2002)

Yes/No Cards

Students holding yes/no cards raise these cards in response to questions asked by the teacher. The teacher usually begins with unit vocabulary words and calls on individuals with yes cards to define the words. Then, the teacher can move onto some comprehension or application questions from the unit (Gregory & Chapman, 2002).

Graffiti Facts

Graffiti Facts are a collection of facts recorded by students into the categories of "What I knew", "What I want to learn", and "What I learned". The last section is completed after the end of the unit (Gregory & Chapman, 2002).

During assessment

An effective teacher continuously monitors student progress and checks for understanding so that (s)he can determine what modifications are necessary to meet the needs of all students. Sometimes even experienced teachers over- or under-estimate the abilities of students to learn new information or a new skill. Gregory & Chapman (2002) designed five simple assessments that teachers can use to monitor student understanding: Thumb It, Fist of Five, Face the Fact, Reaching of the Top, and Speedometer Reading.

Thumb It

Students demonstrate their level of knowledge using their thumb by pointing it up if they understand a lot of the topic, pointing to the side if they understand some of the topic, and pointing down if they understand very little of the topic.

Fist of Five

Using the Fist of Five technique, students show between one and five fingers based on their level of comprehension, with one being the lowest level of understanding and five being the highest level. If a child signals using five fingers, then (s)he is telling that teacher that (s)he can explain the material to anyone (Gregory & Chapman, 2002).

Face the Fact

The Face the Fact technique asks students to hold up a face card with a smiling face, frowning face, or expressionless face to show their level of understanding.

Reaching for the Top

When students participate in the Reaching for the Top strategy, their arms signal the level of understanding. Students can raise their hand from the shoulder to the elbow to the ceiling to represent how much they comprehend about the topic.

Speedometer Reading

Students' arms assume the role of a speedometer with this strategy. They put their arms together and demonstrate from zero to one hundred miles per hour how much they understand (Gregory & Chapman, 2002).

Diane Heacox (2002) also developed some more detailed, formal forms of assessment during instruction or in the middle of the unit. She divided her assessments into two groups: 1) Teacher keeps track of progress, and 2) Students keep track of progress.

Teacher keeps track of progress

Teachers need to monitor student behavior, progress, and level of understanding, especially when students are working independently. This monitoring keeps students on-task and allows teachers to intervene when necessary to help students with concepts or skills that the students may find difficult. Teachers can assess student progress during a unit in several ways.

First, teachers can assess through dialogue. This dialogue can be formal, such as a scheduled conference with a program, or informal, such as spontaneous chats with students at work. Second, teachers can assess through checklists of quality criteria. Third, they can skim student work or worklogs to check progress (Heacox, 2002).

Students keep track of progress

When working independently, students need to assume responsibility for completing work and seeking assistance when needed. Students can keep track of their progress using one or more of several methods. First, students can record their progress in a worklog if an activity will extend over several class periods. Second, students can use checklists on which they check off a component of a project or activity when it is completed. Third, they can incorporate peer reviews into the classroom. With peer reviews, students review each other's work using a checklist and provide feedback for one another. To ensure that peers take their responsibility seriously, partners sign each other's checklists. Last of all, students can use teacher-prepared time lines which help them stay focused on long-term projects by providing deadlines for smaller components of the project (Heacox, 2002).

Quickwrite

Many teachers also choose to use the quickwrite technique. With this method, teachers present a topic or question to the students, and the students write about this subject for approximately five to ten minutes.

Post-assessment

Teachers following any type of teaching pedagogy include some form of post-assessment in their lessons. Differentiated classrooms incorporate a variety of post-assessment strategies to accurately assess student learning. These strategies can be divided into two groups: reflection and assessment activities. With the first group of activities, students reflect upon what they have learned in a unit or lesson. These strategies usually are quick and more informal than other assessment techniques and serve two purposes: allow students a chance to discuss with one another to self-assess learning and build connections to the information to make it more accessible in the future. Some teachers use journals, polls, interviews, or conferences as a reflective activity. Gregory & Chapman (2002) illustrated seven additional activities that are easily incorporated into the end of a unit.

Wraparounds

As a class or in smaller groups, students sit in a circle. Each student tells something useful in the activity or unit, something (s)he will remember, and/or an AHA! Moment in which an idea or concept became clear.

Talking Topics

Students pair off and swap facts with one another.

Conversation Circles

Students are divided into groups of three or more. Each person is assigned a letter in order of the alphabet. Person A talks about what (s)he

learned until a signal sounds, then Person B continues. This process continues until all students have shared (Gregory & Chapman, 2002).

Donut

Students draw a donut. In the center of the donut, they list the facts, concepts, skills, etc. that they already know. In the larger, outside part of the donut, students write about the information they are learning.

Rotation Reflection

This more complex activity allows students to organize their thoughts around a group of related concepts. With this strategy, charts with assigned topics are hung around the room. Groups gather at each chart to discuss what they learned about that topic while an assigned recorder writes down the ideas mentioned. When a signal is given, the groups move on to the next chart. The last group will remain at a chart, will synthesize the information, and will report it to the rest of the class.

Paper Pass

Paper pass resembles the rotation reflection. Groups brainstorm ideas about a subject written on a piece of butcher block paper before they pass the paper to the next group. This group then reads the ideas and adds to them before passing the paper to the next group. The last group finds references for statements made by other groups. Then students share the information learned.

Grand Finale

As students are leaving, ask them to complete one final task. Individually, they can state what they learned that day or what they hope to learn tomorrow.

As a group, students can state what made their group great or what they will work on the next day (Gregory & Chapman, 2002).

Assessment activities provide an opportunity for students to demonstrate what they have learned and for teachers to evaluate this learning. Many teachers of differentiated classrooms struggle with final assessment, especially with the idea of assigning grades. Grading provides an opportunity for teachers to provide clear, concise feedback and to accurately determine the level of student learning; however, grading and assessment can assume many forms. Paper and pencil tests at the end of a unit are an important element in today's classroom. Frequently, students are asked to demonstrate their knowledge using these types of tests. Their performance often plays a role in important educational decisions, such as special education services, college entrance, entrance into advanced course, and scholarships. Furthermore, schools feel pressure from local, state, and national government to perform well on this type of test. Therefore, students need continued experience with formal tests. However, teachers can still modify the paper and pencil tests to accurately assess student progress.

Heacox (2002) designed three approaches to tests. First, teachers can offer a common pre- and post-test given to all students, a method seen most often in classrooms today. Second, teachers can develop different tests for groups of students. Last of all, teachers can administer tests that have half of the questions in common and half that apply to a specific group. When adapting

tests, they must be careful not to punish students who begin with advanced knowledge or to allow other students to use their lower level as a crutch.

To avoid unfairly assessing students by over-modifying assessment, differentiated instruction grades should be only a part of the whole grade. Furthermore, teachers can use authentic assessments to evaluate and assign grades to independent projects. When assessing group work, projects, or centers/stations/workshops, teachers need to develop assessment tools to make grading more objective. Rubrics, anecdotal notes, checklists, journal entries, self-evaluation, and conferences help teachers evaluate learning. In addition to assessments completed during the unit, teachers can assess centers using several strategies: dialogue journals, center checklists, open-ended questions, and student self-assessment. When evaluating projects, teachers can use rubrics, conferences, student logs, timelines, and student/teacher contracts (Gregory & Chapman, 2002).

When concerned with varying levels of complex projects, teachers can use the Totally 10 system designed by Diane Heacox (2002). Using this grading method, students choose activities to receive a score. Two point, four point, six point, and ten point activities are offered. From these project ideas, students must accumulate a score of ten points. When assessing group projects, Gregory and Chapman (2002) also alleviate concern about unfairly assessing students based on other student performance by making the grade a culmination of four categories: content, presentation, group skills, and an end-of-the-unit test.

Portfolios

Portfolios are an assessment tool that can be used as both a reflective and assessment tool. With portfolios, students collect artifacts, select the artifacts they want to appear, and reflect upon what they have learned. Teachers can then assess this portfolio as a demonstration of student progress and to reaffirm beliefs about student abilities (Smutney et al., 1997). Portfolios help students learn the skills of self-assessment and self-monitoring to help themselves learn independently. They provide a good example for teachers during conferences with students or parents and offer students a cumulative artifact in which they can feel ownership (Hebert, 2001; Johnson, 2003; Gregory & Chapman, 2002). Portfolios should be graded using a rubric that is shared with students and parents at the beginning of the school year (Bender, 2002).

What Instructional Strategies Are Part of a Differentiated Classroom?

Teacher-Directed Strategies

Questioning

All teachers use questions when instructing students; however, differentiating instruction requires the teacher to evaluate the types of questions being asked and use these questions to challenge each learner. The easiest way to reach a variety of learners is to differentiate questions according to Bloom's Taxonomy, an organizational grouping of types of questions. Incorporating questions aligned with the six levels allows the teacher to differentiate the challenge of activities, provide more rigorous, relevant, or complex concepts, and

reinforce basic content (Heacox, 2002). A good technique to use when questioning is "Think, Pair, Share", a strategy in which students think about a question for a short period of time, find a partner, and share their thoughts about the question.

Cubes

Cubes are a strategy that allows students to look at an issue or concept in six different ways based on Bloom's Taxonomy. On each side of the cube, a question or command is written. For example, the sides of the cube could say the following: a) describe it, b) compare it, c) analyze it, d) associate it, e) apply it, f) argue for or against it. Cubes help students learn because they provide an easy way for teachers to differentiate by readiness, interest, or learning profiles. To incorporate cubes into a classroom, follow these steps: 1) Set goals for your students, 2) Make sure the students understand the concept, 3) Group students by readiness with color-coded cubes or match tasks appropriately to understanding, 4) Ask the groups to share (Gregory & Chapman, 2002).

- Tell, describe, recall, name, locate, list
- Compare, contrast, example, explain, define, write
- Connect, make, design, produce, develop
- Review, discuss, prepare, diagram, cartoon
- Propose, suggest, finish, prescribe, devise
- Debate, formulate, choose, support

(Gregory & Chapman, 2002, p.13)

Curriculum Compacting

Curriculum compacting is a strategy used to challenge advanced learners by allowing those students to move on to more complex or abstract items instead of participating in a review of previously-learned material. This strategy enriches the basic curriculum, enhances higher order thinking, and promotes self-direction (Bender, 2002; Gregory & Chapman, 2002; Johnson, 2003; Smutney et al., 1997). It reinforces the educational idea that all students deserve an education geared toward their needs, even those students who are above the level of their peers. It works well in a diverse classroom because it focuses on high ability students that are often neglected, provide challenge, and allows the pace of the classroom to be modified (Reis, Burns, & Renzulli, 1992).

Gregory and Chapman (2002) suggested planning a compacted unit in three phases. In phase one, the teacher pre-assesses student to gather information about what the students know and what they need to learn. In phase two, the teacher analyzes the data collected in phase one to determine which skills have been mastered and how they will learn the material they still need to learn. They can gain this information through whole class instruction, independent study, homework, or online learning. During the third phase, the teacher designs and offers advanced level activities for the students to complete in place of additional review and practice. These activities should be meaningful and challenging for the students and could include investigations, contracts, or service learning projects (Tomlinson, 1999).

Tiered/Adjustable Assignments

Tiered assignments, also known as adjustable assignments, involve all students working on main concepts and skills, but at varying levels of complexity and abstractness. Using these assignments, teachers can challenge students but ensure that success is attainable by building activities that are based on student ability levels while requiring all students to stay active, interested, and engaged (Gregory & Chapman, 2002; Tomlinson, 1999). Heacox (2002) divided tiered assignments into six types:

- Challenge, differentiated according to Bloom's taxonomy
- Complexity, differentiated into three or more tiers according to complexity of activity
- Resources, differentiated according to materials that reach students on various reading levels
- Outcome, differentiated through advanced opportunities for learning
- Process, differentiated when students produce similar outcomes but use different processes to learn the information
- Product, differentiated according to learning preference (Heacox, 2002).

To tier activities, teachers follow five steps: 1) select concepts and skills that should be mastered by all students; 2) pre-assess and consider levels of students; 3) draw a ladder to map low to high skill levels within concept; 4) write various levels of the lesson; and 5) match version of task to each student (Gregory & Chapman, 2002; Tomlinson, 1999).

Graphic Organizers

Students can use graphic organizers to manage and organize new information into a format that attends to visual/spatial and logical/mathematical students. These visual representations allow students to see relationships between related material. Teachers can provide completed graphic organizers for the students, partially completed graphic organizers, or blank pieces of paper on which students can create their own organizers. For heterogeneous classrooms, teachers can provide graphic organizers with varying levels of support. These organizers work well as a brainstorming tool at the beginning of a new unit; a record of new information collected during a lecture, reading, or video; a timeline of events; a checking for understanding tool, a note-taking record, or a culminating assessment (Bender, 2002; Gregory & Chapman, 2002). This method relates to three instructional strategies of Marzano, Pickering, & Pollack: comparing and contrasting, classifying, and using metaphors (2000).

Independent Activities

To reach the needs of all students simultaneously in a diverse classroom, the teacher must incorporate more opportunities for students to complete independent activities. These activities usually involve student choice which allows the students to take ownership in the project, thus motivating them to work more diligently on the project. Thirteen independent activities are explained in detail below.

Pathway Plans

Pathway plans are a "format for keeping track of students' skill development and presenting a choice of tiered, alternative activities to students who demonstrate a proficiency in a particular skill" (Heacox, 2002, p. 101). This method incorporates the exit points used when mapping a differentiated unit as students loop in and out of skill instruction based on their need to listen to the new material being presented or participate in a review. In the time that they are not involved in the instruction, they work on skills listed on a checklist or plan. These checklists will be turned in to the teacher for assessment to ensure student responsibility (Heacox, 2002).

Project Menus

Project menus are simply a list of possible projects from which students can choose. These projects are tiered according to challenge level. These activities are especially effective as a warm-up or cool-down for other activities in which students will be finishing their work at different periods of time. Hint for teachers: make challenging projects even-numbered and easier projects odd-numbered so that you can easily recommend a project at the student's ability level. If a student chooses an activity that may be too difficult for him or her, make modifications to the project to meet the needs of the learner (Heacox, 2002).

Stations

Stations are areas set up around the classroom that focus on interrelated topics. To manage students during station time, teachers can hang a pegboard

with nails. Each student will have a nameplate that will be hung on the nail of the station that the student should visit that day. The teacher must remember diligently to vary the order of students in stations. These stations should include a variety of activities for students to practice a skill or concept after instruction (Johnson, 2003; Tomlinson, 1999).

Challenge Centers

Centers resemble stations except for one detail- centers are not interrelated. Instead, a teacher designs stations to work on skills or subjects. For example, at one time, a teacher may have writing, computer, and science centers working on skills in different subject areas. Challenge centers work well for students ranging in ability levels. At these centers, students work independently with materials to explore a topic or learn a task at their own pace. These centers can include a variety of reading materials to reach all students. Furthermore, they work well as warm-up or cool-down activities that can extend over the course of a few days or weeks (Gregory & Chapman, 2002; Heacox, 2002; Johnson, 2003). To manage students during center time, teachers can assign students a color. At each station, they will work on activities in that color folder (Tomlinson, 1999). At each station, teachers should provide clear directions and expectations for students. They can do this through simple activity cards which can be modified easily for a new group of students (Bender, 2002).

Workshops

In workshops, students explore a question presented by the teacher by experimenting with materials and resources provided. For example, a good

workshop question could be, "What happens when you mix solids and liquids?" Then, the students can explore with different solid and liquid substances. This strategy meets the needs of all students without any adaptations by the teacher because each child will reach a unique level of understanding through this experimentation. Some of the students at the lower end of the spectrum may just report results of the experimentation while the students at the higher end of the spectrum may form generalizations from the data they collect. After the students have explored, it is vital to provide a reflection opportunity so that the teacher can understand and dispel any misconceptions (Heuser, 2000; Johnson, 2003).

Spin-offs

Spin-offs are projects based on student interest in a broad topic that may be completed independently, with partners, or in small groups. Three types of spin-off projects exist: teacher-directed, required product, and student-directed. Teacher-directed spin-offs must include content or key issues presented by the teacher. Spin-offs with required products are centered around key issues chosen by the students but include teacher-assigned products. Student-directed spin-offs allow students to choose the topic, content, and product around a given theme. For spin-offs, teachers must provide choices for students, give class time, include measures of work such as checklists or progress logs, and include a self-reflection activity (Heacox, 2002).

Personal Agendas

To use personal agendas, teachers create student-specific tasks with special instructions. These activities can build on strengths, work on areas of

concern, and foster independence. This method also is helpful in that students can be working on different subject areas simultaneously according to personal needs. Agendas need to be evaluated daily or weekly to ensure student progress (Tomlinson, 1999).

Orbital Studies

Orbital studies are three to six week independent investigations on a student-selected topic. At the end of the assigned period, students present the well-researched projects. Orbital studies are an especially useful method for advanced students who often complete daily work ahead of time (Tomlinson, 1999).

Contracts

Although the responsibility for planning rests with the teacher, contracts are effective independent work projects for students. Using contracts, students work on activities that are agreed upon by the teacher and student (Tomlinson, 1999). The teacher must clearly explain expectations and the method of assessing student progress. When designing contracts for a class, the teacher can choose to include some core activities for all students and some choice activities or allow students to choose all of the activities (Gregory & Chapman, 2002). These contracts affect student achievement by allowing students to take initiative in the learning process and, therefore, learn the material more deeply and permanently (Knowles, 1986).

Sponge Activities

Sponge activities, also known as anchor activities, provide meaningful work for self-directed learners to complete when they have extra time. Students with extra time can review a skill, organize their weekly agendas, examine their portfolio, research a topic of interest, or design a concept web about a science, health, or social studies topic (Gregory & Chapman, 2002). These activities help the teacher attend to students who need more guidance by providing other students with meaningful, independent activities to complete. These activities could be part of a long-term project or a daily activity presented to students before they organize themselves to work (Johnson, 2003).

Problem-based Learning

Problem-based learning consists of giving students open-ended, minimally structured problems with which students use information and real-world processes to solve the problems. The students decide as a group what information they will need to solve the problem. During this investigation, they learn problem solving, crisis solution, and divergent thinking skills. This technique works well for enhancing student achievement because the experience is relevant and interesting for the student, develops conceptual understanding, and offers multiple solutions for students. Problem-based learning involves five steps for students: 1) Identify and clarify the problem; 2) Draw on background knowledge and experience; 3) Plan an approach; 4) Work at your own pace; and 5) Use creative solutions (Gregory & Chapman,2002; Lambros, 2002).

Role-playing

During role-play, students "take the role of a character, perhaps from a story, play, or novel, a historical or political figure, or someone depicting a particular scenario that deals with a concern or issue such as conflict resolution" (Gregory & Chapman, 2002, p.103). This reenactment helps students learn material and concepts by helping them physically and emotionally process knowledge. Because the students are immersed in situations, they interact more thoroughly with the content while developing verbal and performance skills (Gregory & Chapman, 2002).

Other Student Projects

For other student projects, teachers and students should follow a four-step procedure. First, the student, sometimes with the aid of the teacher, must choose a topic. Then, he or she will develop a plan of action including a feasible timeline and necessary materials. Then, the student will implement the plan by gathering ideas, deciding upon a format, conferencing with the student, compiling ideas, and preparing a class presentation. Last of all, the student will display and present the information to the class or the teacher. These projects should coincide with the goals, standards, and objectives for the unit (Gregory, 2002).

Group Activities

A key component of a differentiated classroom is additional group work activities. Work in groups provides students with additional instructional time, as well as an opportunity to learn from one another. According to Vygotsky (1978), students require social interactions to comprehend and make connections with

new content. Each child has a zone of proximal development, the area between actual development and potential development that students can reach with assistance from an adult or in collaboration with peers. The nine grouping strategies listed and explained below work well for students in a differentiated classroom.

Flexible Grouping

In flexible grouping, students "move according to demonstrated performance, interests, and varied knowledge base levels" (Gregory & Chapman, 2002). Some researchers argue that this strategy is the heart of differentiated instruction because it forces teachers to provide personal instruction, allows for additional instructional time, and lets students feel involved, engaged, and confident because they are not hindered by a unchangeable group position. When teachers incorporate flexible grouping into classrooms, they provide detailed, thorough directions and steps so the students can work in groups. Usually each group is provided with a checklist or a rubric to keep them on-task (Heacox, 2002). Using this method, Gregory and Chapman (2002) suggested teachers use TAPS as an acronym to differentiate groups. TAPS represents Total group, Alone, Partner, and Small group. Based on specific learning needs, strengths, areas of concern, or preferences, teachers can group students in the most appropriate learning setting. Grouping strategies have developed well beyond the traditional view of separating students into groups based on ability in which the students assigned to a group never advance to a different group.

Knowledge of a Subject

When grouping students according to knowledge of a subject, teachers place students in groups with other students who have the same base knowledge as other students. This grouping strategy is effective when learning a task or concept with which students vary greatly in levels of mastery. When students are grouped according to knowledge, teachers can modify activities and instruction to give the additional support needed by some students while providing challenge for those students who already mastered the material (Gregory & Chapman, 2002).

Ability to Perform a Task or Skill

Teachers can group students according to their ability to perform a task or skill. These homogeneous groups allow students to work at a pace that fits their abilities. This strategy also lends itself to a form of peer tutoring in which students form master and apprentice groups. The students in the master group teach the task or skill to other students in the class (Gregory & Chapman, 2002).

Interests in a Specific Area of the Content

This grouping strategy mixes students into groups they do not usually form. Through this strategy, teachers form heterogeneous groups of students to work on a particular topic that interests them within a unit of study. For example, when studying World War II, some students may focus on a project centered around Japanese internment while other students may focus on American lives at home (Gregory & Chapman, 2002).

Peer-to-peer Tutoring

With peer-to-peer tutoring, both the tutor and the tutee learn from the experience. This technique appears often in research for effectively aiding students in mastering material in a variety of subject areas, such as oral reading, comprehension, math, spelling, vocabulary, and social skills (Delaquadri, Greenwood, Whorton, Carta, & Hall, 1986; Gregory & Chapman, 2002; Maheady, Sacca, & Harper, 1998). It often eliminates failure, increases learning and achievement, fosters positive teacher and student interactions, and increases scores on standardized tests (Keel, Dangle, & Owens, 1999; Maheady et al., 1998). The immediate, positive results are a reflection of increased engaged time, opportunities to respond, and time for teachers to monitor progress (Keel et al., 1999). Furthermore, students often can explain material more effectively than a teacher because they can relate the information to student experiences and use student language. In some forms of peer tutoring, both students assume the role of tutor by alternating roles and following a teacher-designed procedure.

Sharing Groups

Sharing groups require students to meet with one another to gather information, share knowledge, or review previously-learned material. Many types of sharing groups exist, but three types fit most easily into a differentiated classroom: Brainstorming bash, community clusters, and research probes. In brainstorming bash, students group together to discuss ideas and thoughts about a topic. A recorder usually writes down ideas mentioned during the brainstorming session. With the community cluster method, students form a sharing circle in

which they discuss findings, reflections, and personal connections made with the material. Research probes are used to help students brainstorm and evaluate possible research topics and then research the topic. After the group has decided upon a topic, students divide the research into parts, and students separate to find the necessary materials and information (Gregory & Chapman, 2002).

Multiage Grouping

Multiage grouping involves mixing students from various grades. With this strategy, the older students usually reinforce their previously learned knowledge by teaching it to younger students. This grouping procedure also refers to groups formed with students in many grades, but varying ability levels (Gregory & Chapman, 2002).

Cooperative Learning

Cooperative Learning is a strategy in which groups of four students work together to master material (Slavin, 1990). It allows students to build their social skills and intellectual skills simultaneously. While working in these groups of classmates, students develop self-awareness, self-motivation, empathy, acceptance of other peers, self-esteem, and managing tasks skills. An essential element of effective Cooperative Learning is accountability. To ensure that all students stay on-task and, therefore, benefit from the activity, teachers must set up roles for students or a system of accountability, such as a progress chart and a group evaluation element. When forming heterogeneous groups, teachers can differentiate tasks by complexity or abstractness. Teachers also can offer opportunities for students to display their skills using Gardner's multiple

intelligences (Gregory & Chapman, 2002; Schneidewind & Davidson, 2000). This strategy benefits students by increasing time spent on-task, improving classroom behavior, enhancing positive attitudes toward school, and increasing achievement (Slavin, 1990). Three specific forms of Cooperative Learning are listed below: Jigsaw, Student Teams-Achievement Divisions, and Teams-Games-Tournaments.

Jigsaw

The Jigsaw method enhances learning and retention by providing students with an opportunity to learn and teach material, thus reinforcing the material. With Jigsaw, students form a home base group of four students. From this group, the students form four additional groups with students from other home bases to learn a new concept, skill, or material. Then, the students return to their home bases to teach the newly-learned material to the other members of the group (Gregory & Chapman, 2002; Slavin, 1990).

Student Team-Achievement Divisions (STAD)

In these Cooperative Learning groups, students review and discuss material presented by the teacher. After the review sessions, students take individual quizzes. The teams are awarded points based on group improvement (Slavin, 1990).

Team-Games-Tournament (TGT)

The TGT method resembles the STAD method except a series of tournaments replace the weekly quizzes. With TGT, students earn points during

a tournament by answering correctly questions presented to them and other students on their ability level.

Gardner's Intelligences Groups

Students can also be grouped according to their intelligences according to Gardner's system. With this method, students with logical/mathematical skills can work together on a project that relates to their preferred method for demonstrating knowledge (Johnson, 2003).

Learning Preferences

Grouping students according to learning preferences allows teachers to instruct students in their preferred manner. With this form of groups, students not assigned to the teacher should be given clear directions and expectations for work they can complete independently (Silver, Strong, & Perini, 2000).

How Does Differentiating Instruction Address the Standards?

With current state and national legislation, teachers feel added pressure for all students to meet the levels described in the standards. In fact, differentiating instruction and a standards-based curriculum work together. While standards dictate what must be taught in schools, teachers decide how they should teach this material. Furthermore, when teachers focus on helping each student reach his or her maximum learning potential, logically student improvement on these tests will follow. To meet all of the standards written for students in all grades, teachers must differentiate the instruction to use classroom time most effectively. They also should organize standards into related concepts to help students make connections between standards

(Heacox, 2002). Even though the tests for students are standardized, teachers must stay aware that students are still individuals and must be treated as such. Differentiation is a teaching philosophy that helps teachers focus on each student and improving the classroom environment and instruction so that each student learns (Tomlinson, 2000).

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Practical Component

In order to implement some of the differentiating instruction strategies and determine their effectiveness, I worked in a fourth grade inclusion classroom at Morrison Mock Elementary School, a K-5 school in an urban district. I visited this classroom three days a week for two hours each day. During this period when I could visit the school, I prepared and taught differentiated lessons for social studies and science units, while assisting select students with mathematics concepts. For the days when I could not visit the school, I designed lessons for the teacher to teach.

The inclusion classroom for social studies and science contained students varying in ability levels from gifted and talented to mildly mentally disabled. To assist the general education teacher, a special education aide attended classes along with the students with special needs. This aide provided assistance in reading, clarifying directions, writing, and helping students understand the new material. During the time that I taught lessons in this classroom, the regular teacher also was present.

Growth & Change

Monday	Tuesday	Wednesday	Thursday	Friday
			Anticipation Guide & Preview and read lesson one	Crossroads of America/ labeling Indiana map S.S. 4.1.6, 4.3.4
Pros/Cons of Transportation Essay for grade S.S. 4.1.6, 4.1.9	Money Trouble and Working on the Railroad S.S. 4.5.5	Preview and read lesson 2	Public Schools/ Colleges Debate S.S. 4.1.6, 4.1.9	Preview and read lesson 3
Farmer's Life/ Introduce goods and services 4.4.1, 4.4.4	Goods, services, manufacturing supply, demand 4.4.1, 4.4.2, 4.5.6	Review for test	Test over chapter 7	

Lesson	Whole-Class Components	Differentiated Components
1 One period Thursday	2. Preview and read lesson one	1. Anticipation Guide
1 One period Friday	1. Label map with modes of transportation 2. Discuss the motto of Indiana.	
1 One period Monday	1. As a class, create a pro/con chart for modes of transportation 2. Class essay	
1 One period Tuesday	1. Read story about Irish immigrant 2. Review Internal Improvement Act of 1836 3. Calculate debt 4. 2-3 sentence write-up	
2 1 period Wednesday	1. Preview and read lesson two	

2 1 period Thursday	1. Review chapter. 2. Class debate.	3. Tiered writing assignments
3 1 period Friday	1. Preview and read lesson 3	
3 1 period Monday	1. Mathematics graph 2. "Doughnuts" scenario 3. Goods & Services 4. Review demand	
3 1 period Tuesday	1. Artisans and Manufacturers 2. Find 6 items	2. Tiered writing prompts.
All 1 period Wednesday	1. Test review of important concepts.	
All 1 period Thursday	1. Test	

Jennifer M. Spence

Growth and Change

I. Descriptive Data

A. Classroom Teacher: Mr. Spradlin

B. Course: Social Studies

C. Topic: Indiana History

D. *Standards:*

- Social Studies Standard 1: History. Students will trace the historical periods, places, people, events, and movements that have led to the development of Indiana as a state.
- Social Studies Standard 3: Geography. Students will explain how Earth/sun relationships influence the climate of Indiana, identify the components of Earth's physical systems, describe the major physical and cultural characteristics of Indiana, give examples of how the interaction of people with their environment has changed over time and continues to change, and identify regions of Indiana.
- Social Studies Standard 4: Economics. Students will study and compare the characteristics of Indiana's changing economy in the past and present.
- Social Studies Standard 5: Individuals, Society, and Culture. Students will examine the interaction between individual and group behavior in community life; analyze the roles and relationships of diverse groups of people contributing to Indiana's cultural heritage;

and describe the impacts of science, technology, and the arts on Indiana's culture.

- Language Arts Standard 2: READING: Comprehension. Students read and understand grade-level-appropriate material. They use a variety of comprehension strategies, such as asking and responding to essential questions, making predictions, and comparing information from several sources to understand what is read. At Grade 4, in addition to regular classroom reading, students read a variety of grade-level-appropriate narrative (story) and expository (informational and technical) texts, including classic and contemporary literature, poetry, magazines, newspapers, reference materials, and online information.
- Language Arts Standard 5: WRITING: Applications (Different Types of Writing and Their Characteristics). At Grade 4, students are introduced to writing informational reports and responses to literature. Students continue to write compositions that describe and explain familiar objects, events, and experiences. Student writing demonstrates a command of Standard English and the drafting, research, and organizational strategies outlined in Standard 4 — Writing Process. Writing demonstrates an awareness of the audience (intended reader) and purpose for writing.

Day One: Pre-assess, Lesson One

II. Sub-Standards:

Language Arts

- 4.2.1 Use the organization of informational text to strengthen comprehension.
- 4.2.2 Use appropriate strategies when reading for different purposes.
- 4.2.3 Make and confirm predictions about text by using prior knowledge and ideas presented in the text itself, including illustrations, titles, topic sentences, important words, foreshadowing clues (clues that indicate what might happen next), and direct quotations.

III. Objectives

A. Students will complete an anticipation guide about chapter seven.

B. Students will preview and read lesson one.

IV. Materials: Anticipation guides, post-it notes, textbook on CD

V. Procedure

A. Hand each student an anticipation guide to be returned to the teacher after completion.

B. As a class, preview lesson two by asking students to identify titles, headings, subheadings, vocabulary, pictures, maps, themes, and predictions. To check for understanding and participation, students will place a post-it note on some of the items to identify.

C. Ask students to read lesson two.

VI. Evaluation/Assessment: Pre-assessment and informal assessment will be conducted by the teacher and aide.

VII. Special Accommodations: The questions on the anticipation guide will be read and explained to the students with special needs. The special education aide will sit with the special needs students to help with the preview. The text will be played on a CD for these students to help with reading of the text.

Day Two: Crossroads of America

II. Sub-Standards: Social Studies

- 4.1.6 Explain how key individuals and events influenced the early growth of the new state of Indiana. (i.e. canal and road building, the first railroad line)
- 4.1.9 Give examples of Indiana's increasing agricultural, industrial, and business development in the nineteenth century.

III. Objectives

A. Students will label a map of Indiana.

B. Students will determine the reason Indiana was named "The Crossroads of America".

IV. Materials: Indiana maps

V. Procedure

A. Brainstorm the modes of transportation that appeared in lesson one. Make a key to include all modes on a large map of Indiana.

B. Label Muncie and Indianapolis

C. Begin with the major rivers used by boats to carry goods. Have the students find the two major rivers in Indiana that were used to transport goods on pg. 195. Volunteers will label the Wabash and Ohio Rivers.

D. On pg. 196, ask students to find the names of the major roads built through Indiana (Nat'l. Road, Michigan Rd.). Then, have them look on pg. 198 to find where these roads are on a map. Volunteers will label the class map.

E. Now, ask for students to point to the name of the major canal built through Indiana. Ask for a volunteer to find the canal on the map on page 198 and label the class map.

F. Same as above with major RR (pg. 197)-Madison and Indianapolis RR.

G. What is the motto of Indiana? Look on page 202- what city is the center of many of these roads, canals, and railroads?

VI. Evaluation/Assessment: Informal assessments by the teacher during the map activity and discussion.

VII. Special Accommodations: The special education aide will sit by the students with special needs to help them with the maps and to clarify questions.

Day Three: Pros/Cons of Transportation

II. Sub-Standard: Social Studies

- 4.1.6 Explain how key individuals and events influenced the early growth of the new state of Indiana. (i.e. canal and road building, the first railroad line)
- 4.1.9 Give examples of Indiana's increasing agricultural, industrial, and business development in the nineteenth century.

Language Arts

- 4.5.6 Write for different purposes (information, persuasion) and to a specific audience or person.

III. Objectives

A. Students will evaluate the pros and cons of different forms of transportation in the 1800s.

B. Students will write an essay about transportation improvements.

IV. Materials: Butcher block paper, markers, essay transparency

V. Procedure

A. Call on volunteers to be the scribes for each way of transporting goods (road, canal, river, railroad).

B. Make a pro/con chart for each mode (i.e. What was one problem with the road system? What was one benefit?)

C. Assign an essay for homework and a grade: How has transportation been made easier? How has travel improved Indiana over time and helped it to grow?

VI. Evaluation/Assessment: Informal assessments by the teacher during the discussion. The essay will be collected and graded.

VII. Special Accommodations: Students with special needs will write an essay as a group with the help of the teacher. The essay will be written in a discussion format with the teacher as the recorder.

Day Four: Money Trouble and Working on the Railroad

II. Sub-Standard: Social Studies

- 4.5.5 Give examples of the impacts of science and technology on the migration and settlement patterns of various groups.

Language Arts

4.5.6 Write for different purposes (information, persuasion) and to a specific audience or person.

III. Objectives

A. Students will label Lafayette, New Albany, and Vincennes on an Indiana map.

B. Students will calculate the debt of Indiana in 1836.

C. Students will write two to three sentences describing the connection between transportation and immigration.

IV. Materials: Indiana map, sentence prompt

V. Procedure

A. Read the story about the Irish immigrant. Then, reread the second paragraph on Working on the RR.

B. Review the important parts of the Internal Improvements Acts of 1836. Find Lafayette, New Albany, and Vincennes on the map. Why were these cities and towns chosen?

C. If Indiana was making $75,000 a year, how long would it take to earn $10 million? Would they be able to spend all of their income on this improvement act?

D. Put this sentence prompt on the overhead. Students will write 2-3 sentences to answer. What happened to the workers who came to Indiana to build the canals and railroads when they had to stop

building? Why would it be a problem if many of these people were immigrants?

VI. Evaluation/Assessment: Informal assessments by the teacher during the lesson. The sentences will be collected and reviewed.

VII. Special Accommodations: This group of students will complete the calculation with the help of the aide and a calculator. The sentences can be dictated to a scribe, if appropriate.

Day Five: Introduce Lesson Two

II. Sub-Standards:

Language Arts

- 4.2.1 Use the organization of informational text to strengthen comprehension.
- 4.2.2 Use appropriate strategies when reading for different purposes.
- 4.2.3 Make and confirm predictions about text by using prior knowledge and ideas presented in the text itself, including illustrations, titles, topic sentences, important words, foreshadowing clues (clues that indicate what might happen next), and direct quotations.

III. Objectives

A. Students will preview and read lesson two.

IV. Materials: Post-it notes, CD recording of text

V. Procedure

A. As a class, preview lesson two by asking students to identify titles, headings, subheadings, vocabulary, pictures, maps, themes, and

predictions. To check for understanding and participation, students will place a post-it note on some of the items to identify.

B. Ask students to read lesson two.

VI. Evaluation/Assessment: Informal assessment will be conducted by the teacher and aide.

VII. Special Accommodations: The special education aide will sit with the special needs students to help with the preview. The text will be played on a CD for these students to help with reading of the text.

Day Six: Public Schools/ Colleges Debate

II. Sub-Standard: Social Studies

- 4.1.6 Explain how key individuals and events influenced the early growth of the new state of Indiana. (i.e. canal and road building, the first railroad line)
- 4.1.9 Give examples of Indiana's increasing agricultural, industrial, and business development in the nineteenth century.

Language Arts

- 4.5.6 Write for different purposes (information, persuasion) and to a specific audience or person.

III. Objectives

A. Students will review the chapter.

B. Students will debate the issue of public education.

C. Students will write a paragraph on a given educational topic.

IV. Materials: Assignments

V. Procedure

A. Review the important information in the chapter. (i.e. What is the difference between a college and a university? What groups started most of the early colleges in Indiana? Why did towns want a university to open near them? How did colleges benefit towns? Review the order of these colleges)

B. Class Debate: Divide the class in half. One half of the class will be for public education in 1840. This group will argue that Indiana should set up a system of public education and will state why. The other half of the class will be against this public education in 1840. They will argue that the Indiana government should not set up a system of public education. The towns should take care of the education as they see fit. Each group will have 5-10 minutes to discuss their arguments. (Both sides should review pages 205 and 208 for some more information).

C. Students will answer one of two assigned writing prompts.

1) Describe what education was like on the frontier. What did Caleb Mills do for Indiana education?

2) What did Caleb Mills do for Indiana education? What would education in Indiana be like if he had not campaigned for public education?

VI. Evaluation/Assessment: Informal assessments by the teacher during the lesson. The debate will be evaluated by participation. The teacher will serve as a facilitator and can clear-up misconceptions. The paragraphs will be collected and reviewed.

VII. Special Accommodations: The students with special needs can participate in the debate as they desire. The paragraph will be written as a group with the assistance of the teacher.

Day Seven: Introduce Lesson Three

II. Sub-Standards:

Language Arts

- 4.2.1 Use the organization of informational text to strengthen comprehension.
- 4.2.2 Use appropriate strategies when reading for different purposes.
- 4.2.3 Make and confirm predictions about text by using prior knowledge and ideas presented in the text itself, including illustrations, titles, topic sentences, important words, foreshadowing clues (clues that indicate what might happen next), and direct quotations.

III. Objectives

B. Students will preview and read lesson three.

IV. Materials: Post-it notes, CD recording of text

V. Procedure

C. As a class, preview lesson three by asking students to identify titles, headings, subheadings, vocabulary, pictures, maps, themes, and predictions. To check for understanding and participation, students will place a post-it note on some of the items to identify.

D. Ask students to read lesson three.

VI. Evaluation/Assessment: Informal assessment will be conducted by the teacher and aide.

VII. Special Accommodations: The special education aide will sit with the special needs students to help with the preview. The text will be played on a CD for these students to help with reading of the text.

Day Eight: Farmer's Life/ Introduce Good and Services

II. Sub-Standard: Social Studies

- 4.4.1 Give examples of the kinds of goods and services produced in Indiana in different historical periods.
- 4.4.4 Explain that prices change as a result of changes in supply and demand for specific products.

III. Objectives

A. Students will graph a demand curve.

B. Students will describe the effects of supply and demand.

C. Students will list goods and services found in Muncie.

IV. Materials: Graph paper, chocolate bar, "The Doughnuts"

V. Procedure

A. Mathematics Graph: Hold up a chocolate bar and ask, "How many people would buy this chocolate bar for $5? $4.50, $4, $3.50... $1.50, $1.25, $1.00, $.75, $.50?" Hand each student a piece of graph paper (hand some students a pre-made graph). Make a graph with the x- number of students, y- money they would spend to buy that chocolate bar. Demonstrate how to start the graph on the overhead. When everyone has finished ask:

- What happened when the price of the chocolate bar went down?
- What could a person do to make people want to spend more money on the chocolate bar?

- Who can remember from the chapter what the word *demand* means? (demand: number of consumers willing and able to buy goods. High demand is high prices.)

B. Summarize first part of "The doughnuts" and read on from pg. 59 in Homer Price. "What was the problem in this story? How did they solve this problem? What happened when Homer lowered the price of doughnuts?

C. In the chapter, we talked about goods and services. What is a "good" that is in this story? What were some of the goods that the pioneers would have bought? What is a service that the pioneers would have wanted? What is a good you can find in Muncie? What is a service you can find in Muncie? (Goods: items people buy; Services: work that helps others, such as repairing a tool)

D. Ask for a volunteer to come up to the room. Hand them the chocolate bar. "This student wants to sell the chocolate bar for $.25. Who will buy it? How does he decide who gets it? He'll charge more to get the most money he can get for it. Let's relate this to how transportation affected the farmers. If they could get 10 cents for a bushel of corn in Indianapolis and 50 cents for a bushel of corn in Madison, where would they make the most money?"

VI. Evaluation/Assessment: Informal assessments by the teacher during the lesson. Graphs will be completed as a class. The teacher will assist with the graphs.

VII. Special Accommodations: Clarification during the discussion will be provided by the aide. After the lesson, the teacher will review the concepts again.

Day Nine: Goods, Services, Manufacturing, Supply, Demand
II. Sub-Standard: Social Studies

- 4.4.1 Give examples of the kinds of goods and services produced in Indiana in different historical periods.
- 4.4.2 Define productivity and provide examples of how productivity has changed in Indiana during the past 100 years.

Language Arts

- 4.5.6 Write for different purposes (information, persuasion) and to a specific audience or person.

III. Objectives

A. Students will draw a picture of a man to represent the work of an artisan or a manufacturer.
B. Students will discuss the advantages and disadvantages of items produced by artisans and items made in a factory.
C. Students will find three items in the room that were mass-produced and three items made by hand.
D. Students will write an answer to a given prompt.

IV. Materials: Blank paper, colored pencils, writing prompts

V. Procedure

A. Divide the class into groups of 4 students. Half of the groups will be artisans. The other half of the groups will represent manufacturers using an assembly line, mass-production technique. Explain that in the artisan groups, each individual will draw and color a picture of a person. He/she may decorate it in any way he/she chooses. Explain that in the mass-

production groups, the first person will draw and color a head. Then the paper will be passed to the next person who will add the trunk of the body. The next "worker" will add the arms and hands. The fourth "worker" will add the legs and feet. This process is repeated 3 more times with each of the workers adding the same body parts each time in the same style and color. The four finished products should reflect a standardized product. Distribute 4 sheets of paper and crayons or markers and have the groups complete their assignment.

B. Discuss the following questions:

- Which finished product feels more like your own work? (The artisans usually feel more ownership of their final products.)
- Which finished products show more variety? (The artisans' products show more variety because each artist has a distinct style.)
- What are some of the advantages and disadvantages of each way of producing this product? (The assembly line product is more standardized, usually less expensive to manufacture, produced faster because each worker becomes an expert on assembling one part. The artisan's product offers the individual style of the artisan.)

C. What products could the pioneers buy that were mass produced? What might they buy that were not mass produced? Have the students look around the room. Each student must find 3 items that were mass

produced (made in a factory) and 3 items that were not mass produced (made by a person).

D. Hand each student one of three writing prompts based on writing ability and social studies comprehension.

- Struggling Learners: Do you think the goods made in the factory were cheaper or more expensive than the ones made by hand? Why? Who could make more products? Which would you rather buy, a good made by a person or a good made in a factory?
- On-level Learners: Do you think the goods made in the factory were cheaper or more expensive than the ones made by hand? Why? If you were going to create a new product, what would it be? Would you make it yourself or would you design a factory to make it for you? Why?
- Above-average Learners: Do you think the goods made in the factory were cheaper or more expensive that the ones made by hand? Why? Should we buy products that are hand-made or made in a factory? Why? Does it depend on the product? (For example, should you buy shoes from a factory, but blankets from an artisan?)

VI. Evaluation/Assessment: Informal assessments by the teacher during the lesson. The teacher will check the six items found by each student and will explain if the student identified an incorrect object. The paragraphs will be collected and graded.

VII. Special Accommodations: The aide will sit with the students with special needs to answer questions during the discussion. This group will complete the lowest level writing prompt together with help from the teacher.

Day Ten: Review for Test
II. Sub-Standard: All standards for this unit.

III. Objectives

A. Students will participate in a review of the main concepts found in chapter seven.

IV. Materials: N/A
V. Procedure

A. Review the map. Label Indianapolis, Madison, New Albany, Wabash River, Ohio River, the National Road.
B. Review definitions of key vocabulary and descriptions of key people, places, and things.

VI. Evaluation/Assessment: Informal assessments by the teacher during the lesson.

VII. Special Accommodations: This review session does not require accommodations.

Day Eleven: Test
VII. Special Accommodations: Some students will not take the test. For the other students with special needs, the test will be read to them.

VIII. What would I change about these lessons?

- I would spend more time on the economics topics. I would design a separate unit focusing on these standards, which could include a barter

system, a discussion of currency, and more examples of the effects of supply and demand.

- I would differentiate more activities during lesson one.
- I would use more time to review important concepts with students who need additional help.